UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF NEW YORK
---X
UNITED STATES OF AMERICA

       -against-

GREG CANTONI,

                                  18-cr-562 (ENV)

          Defendant.

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MEMORANDUM OF LAW IN SUPPORT OF MOTION TO EXCLUDE EXPERT
TESTIMONY ON LATENT PRINT IDENTIFICATION EVIDENCE

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Rules

Preliminary Statement

Greg Cantoni is charged with three counts of bank robbery in violation of 18 U.S.C. §§ 2113(a) and 3551. ECF Dkt. No. 7, Indictment. Mr. Cantoni submits this memorandum of law in support of his motion to exclude testimony from the NYPD Latent Print Section ("LPS") examiners the government has indicated it plans to call as expert witnesses.[1] Their testimony is inadmissible because the government has not shown their proposed experts reliably applied the current standards of latent print examination in concluding Mr. Cantoni was the source of a partial print found on the back of a demand note used in a bank robbery. *See* Fed. R. Evid. 702(d). Alternatively, if their testimony is admitted, he asks the Court to prohibit the examiners from directly testifying or implying that Mr. Cantoni was the source of the print on the demand note. The Court should also require them to acknowledge the high potential false positive rates from empirical studies on latent print examination.

Introduction

The crux of the government's case against Mr. Cantoni is a single partial palm print found on the back of a demand note recovered from one of the three robberies he is accused of committing. On September 12, 2018, an NYPD LPS examiner, Detective Cynthia Ramirez, compared that partial print to Mr. Cantoni's prints in an NYPD database and concluded it matched. Her conclusions were verified and technically reviewed that same day by two other LPS examiners, Detectives Michael Skelly and Tania Gaillard. The government plans to call Dets. Ramirez, Skelly, and Gaillard (the "LPS Examiners") as expert witnesses to testify regarding how they concluded Mr. Cantoni was the source of the print on the demand note.

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[1] Mr. Cantoni respectfully reserves the right to supplement this memoranda based on (1) the proficiency testing results provided by the government on February 14, 2019, (2) the NYPD LPS's error rates, which the government has indicated are forthcoming, and (3) and any other disclosures that may bear on the admissibility on the testimony of the government's proposed experts

Their testimony is not admissible, however, because their own case file demonstrates the methods they used to identify Mr. Cantoni's palm print did not adhere to current scientific standards for reliable latent print analysis. *See* Fed. R. Evid. 702(d). Latent print examiners historically used the "ACE-V" (Analysis, Comparison, Evaluation, and Verification) approach, which requires them to subjectively analyze an unknown and known print to assess their similarity. NIST Report[2] at 2. The reliability of this method, and latent print examination in general, was called into serious question after the FBI, relying on this method, misidentified an Oregon attorney as the source of prints recovered in connection with the 2004 Madrid train bombing. PCAST Report[3] at 90. The FBI and scientific community's subsequent efforts to measure the reliability of latent print examination and determine error rates revealed a need to establish new protocols. *Id.* at 100. The FBI led the way in establishing these new protocols, which are generally designed to improve the transparency of the ACE-V process, reduce examiners' exposure to potentially biasing information, and ensure that examiners have undergone rigorous proficiency testing. *Id.* at 100–102.

In light of these new protocols, a 2016 report issued by the President's Council of Advisors on Science and Technology ("PCAST") clarified the scientific standard that corresponds to Rule 702(d)'s requirement that an expert have "reliably applied the principles and methods" of latent print examination. *Id.* at 101–102. Under this five-step process, to reliably conduct a latent print examination, the expert must (1) have undergone proficiency testing, (2) disclose whether they

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[2] National Institute of Science and Technology, Latent Print Examination and Human Factors: Improving the Practice through a Systems Approach (2012) https://nvlpubs.nist.gov/nistpubs/ir/2012/NIST.IR.7842.pdf ("NIST Report").

[3] Executive Office of the President, President's Council of Advisors on Science and Technology, Report to the President, *Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods* (2016), https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensic_science_report_final.pdf ("PCAST Report").

analyzed the latent print before comparing it to the known print, (3) document their comparison of the prints' features, (4) disclose the existence of other facts that could have influenced their conclusion, and (5) verify that the latent print is comparable to those used in foundational studies in terms of quality. *Id.* at 102.

The NYPD LPS case file demonstrates that Det. Ramirez did not follow this five-step process before concluding that Mr. Cantoni was the source of the print on the demand note. There is no indication that Det. Ramirez analyzed the print from the demand note *before* comparing it to Mr. Cantoni's, took contemporaneous notes of her analysis, or revealed her exposure to any potentially biasing information about the case. There is also no indication that Dets. Skelly or Gaillard reliably applied the standards for latent print examination before verifying and reviewing Det. Ramirez's conclusions. Thus, the government cannot meet its burden to show their proposed experts meet the requirements of Rule 702(d).

Alternatively, if the Court does admit their testimony, it should prohibit the LPS Examiners from overstating their conclusions. Scientific expert testimony carries with it the aura of unique reliability and trustworthiness, creating a grave risk that jurors will receive it without a critical eye. To limit this prejudice, the LPS Examiners should, in the course of their testimony, accurately state the error rates in the field of latent print examination and should not suggest that an identification can match a print definitively to one person to the exclusion of others.

Background

A. The NYPD LPS's identification of Mr. Cantoni's palm print.

On September 6, 2018, a person the government alleges to be Mr. Cantoni entered the M&T Bank at 4106 Hylan Boulevard in Staten Island and approached a teller. ECF Dkt. No. 1, Complaint ¶ 2. The person's face cannot be clearly seen because s/he is wearing a hat, surgical mask, and sunglasses. *Id.* The person passed a demand note to the teller, took the cash the teller

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handed over, and then fled. *Id.* The NYPD responded to the scene and recovered the demand note. *Id.* at ¶ 3. The NYPD laboratory lifted two prints from the back of the demand note and provided them to the NYPD LPS section. *Id.* at ¶ 4; Ex. A at 23.

According to the NYPD LPS case file, on September 12, 2018, Det. Ramirez ran one of the prints through an "ABIS," a latent print search database, Ex. A at 18, that returned a result for Mr. Cantoni, *id.* at 5. That same day, she "identified" Mr. Cantoni as the source of the print from the demand note. *Id.* at 6. Also that day, Det. Skelly "verified" the identification, and Det. Gaillard "technically reviewed" it. *Id.* In all, the NYPD LPS's "identification" of Mr. Cantoni's print appears to have been completed in a single work day. *Id.* at 16 (showing the "examination" of the print began and ended on September 12, 2018). Mr. Cantoni was arrested soon after.

B. Latent print examination.

Courts have permitted evidence of latent print examination as a trustworthy method of identifying the source of prints left at a crime scene for over a hundred years. NIST Report at iv. For most of that time, testifying experts assured courts and jurors that latent print examination procedures were so rigorous no qualified examiner could mistakenly identify someone as the source of a print. *Id.* at 32. That type of assurance—that a print can identify one person in the world—has now come to be widely recognized by the scientific community and several governmental organizations as indefensible and lacking in scientific foundation. Cole Aff., Ex. B at 11.

The potential for errors in latent print examination was highlighted by the FBI's misidentification of Brandon Mayfield as the source of latent prints on a bag of detonators linked to the 2004 terrorist train bombing in Madrid, despite the fact that Mr. Mayfield was in Oregon at the time of the bombing. 2006 OIG Report[4] at 1. As a result of the debacle, the Inspector General of the

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[4] U.S. Dep't of Justice, Office of the Inspector General, *A Review of the FBI's Handling of the Brandon Mayfield Case* (2006), https://oig.justice.gov/special/s0601/final.pdf ("2006 OIG

Department of Justice initiated an investigation to determine the causes of the misidentification. *Id.*

In addition to highlighting the lack of foundational research for latent print examination, the

Mayfield misidentification raised a host of other issues, including:

- The fact that the examiner did not conduct a "complete analysis" of the latent print before comparing it to Mayfield's print, causing him to "disregard important differences" between the prints, *id.* at 128;

- The FBI's "overconfidence in the power of" the database that returned Mayfield's print as a match, *id.* at 3, and failure to consider that database searches "can find a confusingly similar candidate print," *id.* at 7;

- The fact that the second "verifying" examiner already knew the initial examiner's conclusions, *id.* at 4, and did not "document the features or mental processes that led to his conclusion," making a definitive assessment of the bias's significance difficult, *id.* at 11.

In the wake of these findings, scientific boards began to closely examine the reliability of latent

print examination procedures and examiners.

The ACE-V is the conventional approach examiners use to associate latent and known

prints. NIST Report at 96. The examiner first conducts an *Analysis* of the latent print by looking

at it to assess its quality and usefulness for comparison. *Id.* at 4. Then the examiner *Compares*

the latent print to a known print and documents what she believes to be any similarities or

differences, also by looking at it. During the *Evaluation* phase, the examiner ultimately

determines whether there are sufficient similarities between the two prints to conclude they come

from a common source by relying on her subjective judgment and experience. *Id.* at 7. A different

examiner then *Verifies* the first examiner's conclusion, also by looking at the latent and known

print.

A 2009 report from the National Academy of Sciences/National Resource Council

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Report").

("NRC")[5] urgently called for empirical studies to test the foundational validity of ACE-V latent

print analysis as a means of forensic identification. NRC Report at 144–45. It observed that since

"the ACE-V method does not specify particular measurements or a standard test protocol . . .

examiners must make subjective assessments throughout," making the outcomes of the method

"not necessarily repeatable from examiner to examiner." *Id*. at 139 (citing research showing that

"experienced examiners do not necessarily agree with even their own past conclusions when the

examination is presented in a different context some time later"). Thus, the NRC Report concluded

that "merely following the steps of ACE-V does not imply that one is proceeding in a scientific

manner or producing reliable results." *Id.* at 142.

After the NRC Report, several key studies on latent print examination were published.

These studies were reviewed in two seminal reports: the 2016 PCAST Report and addendum[6];

and a 2017 report issued by the American Association for the Advancement of Science

("AAAS").[7]

One of the aims of the PCAST Report was to clarify the scientific standards that correspond

to the legal standards for admissibility of expert testimony in Rule 702. PCAST Report at 43. They

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[5] Committee on Identifying the Needs of the Forensic Sciences Community, National Research Council, *Strengthening Forensic Science in the United States: A Path Forward* (2009), https://www.ncjrs.gov/pdffiles1/nij/grants/228091.pdf ("NRC Report"). The Supreme Court has recognized the NRC Report as authority in *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 319 (2009) and *Hinton v. Alabama*, 134. S. Ct. 1081, 1083 (2014).

[6] Executive Office of the President, President's Council of Advisors on Science and Technology, Report to the President, *An Addendum to the PCAST Report on Forensic Science in Criminal Courts* (2017), https://obamawhitehouse.archives.gov/sites/default/files/microsites/ostp/PCAST/pcast_forensics_addendum_finalv2.pdf

[7] William Thompson, John Black, Anil Jain & Joseph Kadane, American Association for the Advancement of Science, *Forensic Science Assessments: A Quality and Gap Analysis of Latent Fingerprint Analysis* (2017), https://www.aaas.org/sites/default/files/s3fs-public/reports/Latent%2520Fingerprint%2520Report%2520FINAL%25209_14.pdf ("AAAS Report")

focused specifically on Rule 702(c)'s requirement that expert testimony be "foundationally valid" or based on "reliable principles and methods," and Rule 702(d)'s requirement that "the expert has reliably applied the principles and methods," which the PCAST referred to as "validity as applied." *Id.*

In clarifying these standards, the PCAST emphasized the challenges in establishing the scientific validity and reliability of forensic science methods, like the ACE-V, that rely on subjective judgment:

> Subjective methods require particularly careful scrutiny because their heavy reliance on human judgment means they are especially vulnerable to human error, inconsistency across examiners, and cognitive bias. In the forensic feature-comparison disciplines, cognitive bias includes the phenomena that, in certain settings, humans may tend naturally to focus on similarities between samples and discount differences and may also be influenced by extraneous information and external pressures about a case.

PCAST Report at 5; *see* AAAS Report at 15, 35–42 (agreeing with this assessment and examining the scientific literature regarding cognitive and contextual bias in latent print examination).

Although the PCAST Report ultimately concluded that "latent fingerprint analysis is a foundationally valid subjective methodology," it cautioned that the false positive rate "is substantial and is likely to be higher than expected by many jurors based on longstanding claims about the infallibility of fingerprint analysis." PCAST Report at 9–10. Thus, for purposes of Rule 702(c), expert testimony on the conclusions reached by latent print examiners must be "accompanied by accurate information about limitations on the reliability of the conclusions." *Id.* at 101.

To establish the requirements for reliable application of latent print examination under Rule 702(d), the PCAST looked to scientific studies on how latent print examiners reach their conclusions. *Id.* at 98–102. The PCAST found two studies by FBI scientists "particularly notable" for their recognition of the risks posed by "confirmation bias," which arises when examiners are made aware of a potential match before analyzing a known print and then modify their analysis to

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"confirm" the identification. *Id.* at 99–100. As a result of these studies and the Mayfield case, the

FBI now requires latent print examiners to engage in the following steps to avoid bias:

> examiners must complete and document analysis of the latent fingerprint before looking at any known fingerprint; examiners must separately document any data relied upon during comparison or evaluation that differs from the information observed during analysis; and verifiers or blind verifiers must separately complete and document their ACE examination.

2011 OIG Report[8] at 27; *see* PCAST Report at 100.

The PCAST determined that these new FBI protocols "need to be universally adopted by all

laboratories" as a matter of scientific validity. *Id.* Thus, for purposes of Rule 702(d), a latent print

examiner "has reliably applied the principles and methods" of print examination if the expert:

> (1) has undergone appropriate proficiency testing to ensure that he or she is capable of analyzing the full range of latent fingerprints encountered in casework and reports the results of the proficiency testing;
>
> (2) discloses whether he or she documented the features in the latent print in writing before comparing it to the known print;
>
> (3) provides a written analysis explaining the selection and comparison of the features;
>
> (4) discloses whether, when performing the examination, he or she was aware of any other facts of the case that might influence the conclusion; and
>
> (5) verifies that the latent print in the case at hand is similar in quality to the range of latent prints considered in the foundational studies.

PCAST Report at 102.

The AAAS Report, which examined fingerprint evidence in even greater depth than the

PCAST Report, reached a number of conclusions regarding the use of fingerprint testimony in

criminal trials. First, claims that experts can identify the source of a latent print with 100 percent

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[8] U.S. Dep't of Justice, Office of the Inspector General, *A Review of the FBI's Progress in Responding to the Recommendations in the Office of the Inspector General Report on the Fingerprint Misidentification in the Brandon Mayfield Case* (2011), https://oig.justice.gov/special/s1105.pdf ("2011 OIG Report").

accuracy are "clearly overstated and are now widely recognized as indefensible." AAAS Report at

9. Second, use of the term "identification" in reports and testimony even with qualifications "fail to

deal forthrightly with the level of uncertainty that exists in latent print examination" and "cannot be

justified scientifically." *Id*. at 10. Third, the report concluded that because of public misconceptions

experts

> should acknowledge: (1) that the conclusions being reported are opinions rather than
> facts (as in all pattern-matching disciplines), (2) that it is not possible for a latent
> print examiner to determine that two friction ridge impressions originated from the
> same source to the exclusion of all others; and (3) that errors have occurred in studies
> of the accuracy of latent print examination.

Id. at 11.

Argument

To be admissible, expert testimony must be based on scientifically valid methods that were

reliably applied. Fed. R. Evid. 702(d); *see also Kumho Tire Co. v. Carmichael*, 526 U.S. 137, 147–

49 (1999); *Daubert v. Merrell Dow Pharmaceuticals*, 509 U.S. 579, 597 (1993). Regardless of the

scientific validity of a method in the abstract, an expert cannot give an opinion based on an unreliable

application of that method. Here, the government seeks to admit expert testimony from three NYPD

LPS Examiners (Dets. Ramirez, Skelly, and Gaillard) regarding their conclusion that Mr. Cantoni

is the source of a single latent print found on the back a demand note used in a robbery. But the

government's disclosures do not demonstrate that their experts adhered to the standards governing

latent print examination, as set forth in the PCAST's five-step process.

Latent print examination was long considered "infallible," even in the absence of empirical

studies to determine its error rate. PCAST Report at 9. But over the past ten years, there has been

a growing consensus that the traditional ACE-V method for analyzing and comparing prints is not

nearly as reliable as once believed. *See* Cole Aff., Ex. B at 11. Scientific studies have revealed that

latent print examiners' subjective conclusions on identifications are especially vulnerable to human error

and bias. PCAST Report at 5. In response, the FBI has adopted rigorous standards, requiring

contemporaneous documentation (both at the initial stage of reviewing a latent print,   and the next stage of comparing that print to potential "matches") and data retention to protect against bias and allow independent verification. 2011 OIG Report at 27. The PCAST has recently incorporated these new FBI protocols into a five-step process for reliable application of latent print examination procedures and methods. PCAST Report at 102. Like the FBI, the PCAST adopted this new method to conform to modern scientific research on the limitations of latent print examination. The NYPD has not.

Unlike the FBI, the NYPD LPS is not an accredited latent print examination laboratory that follows best practices for reliability. The NYPD LPS case file confirms the government's proposed experts did not follow the PCAST's current protocols to ensure the reliability of latent print examination before concluding Mr. Cantoni's palm print "matched" the print found on the back of the demand note. The Court should, therefore, exclude the testimony of the government's proposed experts because their methods failed to meet the scientific standards for reliable application of latent print examination that correspond to Rule 702(d).

At a minimum, the Court should prohibit the LPS Examiners from testifying that they "identified" Mr. Cantoni as "the source" of the print on the demand note. This sort of testimony is scientifically indefensible in light of the well-documented limitations of fingerprint examination. Any testimony from the government's experts should also be accompanied by information on the known error rates for latent print examination, as jurors are prone to assume these rates are much lower than what empirical studies have shown. Without these limitations, Mr. Cantoni will be unfairly prejudiced by misleading scientific testimony that will likely be viewed by the jury as iron clad forensic evidence.

I.   The NYPD LPS Examiners' Testimony Should Be Excluded Under Rule 702(d) Because They Did Not Follow Established Protocols For Latent Print Examination.

The LPS Examiners are expected to testify that Greg Cantoni can be "identified" as the

source of the latent palm print on the back of a demand note recovered from a bank robbery. Their

case file does not, however, include any contemporaneous documentation of their adherence to

the ACE-V method or the PCAST's five-step process for reliable latent print examination. The

sparse case file generally lacks any real documentation of the process they used to conclude that

the recovered print came from Mr. Cantoni. Indeed, it appears they did little more than search the

latent print in a database, which generated a "hit" for Mr. Cantoni, and accepted that result. Because

the government has not met its burden of showing that the LPS Examiners' reliably applied latent

print examination methods, as required by Rule 702(d), their testimony should be excluded. *See,*

e.g., *United States v. Watkins*,   880 F.3d 1221, 1227 (11th Cir. 2018) (*per curiam*) (holding that

the "fingerprint analyst's testimony was probably not reliable [because the] analyst did not

specifically testify   about her scientific methods and her testimony may not have been based on

sufficient facts or data.").

> A. <u>Rule 702 (d) requires a rigorous evaluation of whether the methods of latent print
> examination were reliably applied in this case.</u>

One of the requirements of Federal Rule of Evidence 702, which codified the Supreme

Court's holding in *Daubert* and its progeny, is that the proponent show "the expert has reliably

applied the principles and methods to the facts of the case." Fed. R. Evid. 702(d); *see also Daubert*,

509 U.S. at 592 n.10. The reliability of a particular methodology requires constant reevaluation by

each court asked to admit expert testimony in a particular case. *Daubert* explained that "scientific

conclusions are subject to perpetual revision." *Id.* at 597. For this reason, past acceptance does not

render expert testimony admissible. *United States v. Williams*, 506 F.3d 151, 162 (2d Cir. 2007).

As the Second Circuit has recognized, "expert testimony long assumed reliable before Rule 702

must nonetheless be subject to the careful examination that *Daubert* and *Kumho Tire* require." *Id.*

The Supreme Court has recognized that "serious deficiencies have been found in the

forensic evidence used in criminal trials." *Melendez-Diaz v. Massachusetts*, 557 U.S. 305, 319

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(2009) (noting that "[t]he legal community now concedes, with varying degrees of urgency, that our system produces erroneous convictions based on discredited forensics"). This includes latent print examination. While identifications based on prints left at crime scenes were once considered infallible, there is now widespread consensus that the subjective practice of latent print examination is prone to human error and examiner bias. As a result, the scientific community and the FBI have updated their protocols for latent print examination to ensure reliability and reduce errors. In light of these changes, the PCAST has developed a five-step process for ensuring that expert testimony based on latent print examination satisfies the reliability requirements of Rule 702(d).

B. <u>To be reliable under Rule 702(d), latent print examiners must satisfy the PCAST's five-step process to ensure reliability of latent print examination.</u>

The scientific standards controlling the government's examiners' application of ACE-V are set forth in the PCAST's five-step process for validity as applied, under Rule 702(d), which requires that the examiners (1) have undergone proficiency testing, (2) disclose whether they analyzed the latent print before comparing it to the known print, (3) document their comparison of the prints' features, (4) disclose the existence of other facts that could have influenced their conclusion, and (5) verify that the latent print is comparable to those used in foundational studies in terms of quality. PCAST Report at 102. This process incorporates procedures that have been implemented by the FBI to ensure reliability and reduce errors.

The requirements of contemporaneous documentation and data retention are at the core of the reliability of the ACE-V methodology. The PCAST and FBI require examiners to document their findings at each stage of the examination process, and retain the data—commonly referred to as points of identification—that form the basis of their opinion. *See also* 2011 OIG Report at 13 (citing the FBI standards of practice which require that "examiners create sufficient documentation, including annotated photographs and case notes, to allow another examiner to evaluate the examination and replicate

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any conclusions, and they include specific documentation requirements for each phase of the ACE-V process"). The safeguards of contemporaneous documentation and data exist to guard against the significant levels of cognitive bias that are known to infect each stage of ACE-V.

The documentation requirement is especially critical at the first step of the ACE-V process, where the examiner must fully analyze and document the characteristics of the latent print before comparing it to any known suspect print or computer-generated list of known prints. PCAST Report at 17, 99-100. This preliminary analysis is critical to avoid contaminating the comparison stage with cognitive or confirmation bias. The FBI has shown that when examiners do not follow this procedure, they "often alter the features that they initially mark in a latent print based on comparison with an apparently matching exemplar," which "introduces a serious risk of confirmation bias." PCAST Report at 10. This bias is not intentional, nor is it conscious, but it is real.

This is not unique to latent fingerprint examination; proper documentation of the basis of an expert's conclusions is common across forensic disciplines and generally required under Rule 702. To determine the admissibility of an examiner's subjective opinion it is "essential that the examiner provide a sufficient explanation for the basis of the opinion." *See United States v. Willock*, 696 F. Supp. 2d 536, 561 (D. Md. 2010). As noted by the Advisory Committee Note to Rule 702:

> If the witness is relying solely or primarily on experience, then the witness must explain how that experience leads to the conclusion reached, why that experience is a sufficient basis for the opinion, and how that experience is reliably applied to the facts. The trial court's gatekeeping function requires more than simply taking the expert's word for it.

To this end, courts have required an expert presenting subjective identification testimony to properly document her analysis such that her conclusions and application of the methodology in question can be verified and reproduced. "The twin requirements of adequate documentation and peer review of the primary examiner's results are said to 'ensure the reliability of the expert's results and the testability of the opinion.'" *Willock*, 696 F. Supp. 2d at 561; *United States v. Green*, 405 F. Supp. 2d

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104, 108 (D. Mass. 2005) ("Reproducibility is an essential component of scientific reliability").

Thus, proper documentation is necessary for this Court's assessment of whether the LPS Examiners'

testimony satisfies Rule 702(d), which, in turn, requires that they followed the PCAST's five-step

process for reliable latent print examination.

C. The government has not shown that the LPS Examiners reliably applied the PCAST's five-step process for latent print examination.

The NYPD LPS case file provided by the government shows the LPS Examiners'

comparison of the print found on the demand note and Mr. Cantoni's prints failed to conform to

the recognized standards of reliable print examination, as established by the PCAST's five-step

process.[9]

In general, the materials provided by the government in discovery—and cited as the bases of

its experts' opinions—do not include any contemporaneous documentation or basis for the LPS

Examiners' conclusions. There are no notes showing what similarities they observed, what features

from the *Analysis* stage agreed with those reviewed in the *Comparison* stage, how closely those

features agreed, and whether any new corresponding details were found. Nor did Det. Ramirez

include any data to support her conclusions at the *Evaluation* stage. It is also unclear what data was

reviewed by Dets. Skelly and Gaillard as part of their review of Det. Ramirez's conclusions.

Perhaps most problematic, is the fact that there is no indication that the examiners took *any*

of the necessary steps to reduce bias: analyzing the latent print before comparing it to any other

prints, documenting their comparison of the print's features, and disclosing the existence of other

facts that could have influenced their conclusions. PCAST Report at 102. The PCAST Report

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[9] The first step of the PCAST process requires that the examiners have undergone proficiency testing. As the government disclosed the examiners' proficiency testing results yesterday, the defense has not had an opportunity to decipher these documents. Even assuming the LPS Examiners have undergone sufficient proficiency testing, their analysis of the print evidence in this case was nevertheless deficient.

stressed that in assessing whether an examiner has reliably applied the methods of latent print examination "courts should assess the measures taken to mitigate bias during casework—for example, ensuring that examiners are not exposed to potentially biasing information and ensuring that analysis document ridge features of an unknown print before referring to the known print[.]" *Id.* at 101. Here, there is no indication that the LPS Examiners took any of those steps.

Additionally, it does not seem as if the LPS Examiners' process was blind as to the facts of the case. Indeed, the file jacket indicates the underlying crime was a "robbery," Ex. A at 1, and it is not clear whether the examiners were provided additional information about the circumstances of the crime and what sort of person they should be looking for.

There is also no indication that the LPS examiners accounted for the increased probability of a mismatch as a result of the use of an automated fingerprint identification system. As Dr. Cole explains, the examiners' use of an automated print identification system to "identify" Mr. Cantoni's print heightened the risks of cognitive bias in this case. Cole Aff., Ex. B at 21–24. If the system deems a print a plausible match, this could bias the examiner towards concluding it is actually a match. This is precisely the type of confirmation bias the FBI identified as one of the causes of the Mayfield misidentification. Specifically, the FBI cited their examiners' "overconfidence in the power of" the database that returned Mayfield's print as a match, 2006 OIG Report at 3, and their failure to consider that database searches "can find a confusingly similar candidate print," *id*. at 7. This is especially problematic here, where there is no indication the LPS Examiners took any steps to reduce bias. Indeed, based on the record provided by the government there is no evidence that they did more than accept the highest-ranked hit returned by automated print identification system with no questions asked.

In sum, the government cannot meet its burden under Rule 702(d) to demonstrate the LPS Examiners reliably applied accepted procedures and methods of latent print examination, as

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summarized in the PCAST's five-step process for ensuring reliability. The LPS Examiners' failure to comply with these requirements should, thus, result in exclusion of their testimony.

II. If Not Excluded Entirely, The Court Should Require That The LPS Examiners' Testimony Accurately Reflect The Limitations Of Latent Print Examination.

If this Court does not exclude the latent print testimony in this case, it should in the alternative, circumscribe the testimony in three ways: (1) exclude testimony opining that the latent print from the demand note and the known print "match," are from a common source, or that Mr. Cantoni is "the source" of the latent print; (2) require the LPS Examiners to qualify their opinions by acknowledging that their certainty in any identification conclusion would be limited by the highest potential false positive rate from empirical studies; and (3) mandate that the government acknowledge through the examiner's testimony or by stipulation that studies have found the error rate to be as high as 1 in 18 or 1 in 306.

As Dr. Cole explains, there is "now a consensus among five scientific and governmental reports . . . that categorical conclusions of 'individualization' or 'identification' are not acceptable." Cole Aff., Ex. B at 11. There is also "growing acceptance in the fingerprint community of this point." *Id*. In particular, "[s]tatements claiming or implying greater certainty than demonstrated by empirical evidence are scientifically invalid." PCAST Report at 54.

The AAAS Report, which closely examined the "kind of statements" that "fingerprint examiners" can "reasonably make . . . in order to appropriately convey both the strength and uncertainty associated with fingerprint evidence," concluded that "examiners should be careful not to make statements in reports or testimony that exaggerate the certainty of their conclusions." AAAS at 9–11. The AAAS Report recommended that testifying examiners could "indicate that the similarity between a latent and known print are such that the donor of the known print cannot be excluded as the source of the latent print." *Id*. at 11. It cautioned that testifying examiners should "avoid statements that claim or imply that the pool of possible sources is limited to a single person." *Id*.

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There is every indication that the government intends to proffer such testimony here. Any statement by an expert that Mr. Cantoni's known print "matches" the latent print, or has been "identified" as the source of the latent print, is in essence a statement of absolute source attribution. *See* Cole Aff., Ex. B at 20. Dr. Cole explains that:

> In this case, the examiners "identified" Mr. Cantoni as the source of a latent print. While it is true that they did not use a phrase like "to the exclusion of all others" to emphasize the point that they are claiming Mr. Cantoni is the only possible source of the latent print, there is nothing in the report to indicate that they intend to moderate that implication. Specifically, they neither mention, nor attempt to assign a probability to the possibility that another area of friction ridge skin is the source of that latent print. Under these circumstances, I assume that they intend to tell the fact-finder that Mr. Cantoni is the only possible [source] of that latent print. Based on all of the studies and reports cited above, such an opinion is not scientifically defensible.

Id.

Dr. Cole's conclusions reflect the NRC's view that "[w]hen a latent print examiner testifies that two impressions 'match,' they are communicating the notion that the prints could not possibly have come from two different individuals." *See* NRC Report at 141–42. The AAAS Report similarly concludes that "[t]erms like 'match,' 'identification,' 'individualization' and their synonyms, imply more tha[n] the science can sustain." AAAS Report at 11; *see id.* at 63 ("The term identification. . . implies an ability to limit the source of a friction ridge print to a single individual. That is an ability that latent print examiners cannot justifiably claim to have").

For this reason, the Court should preclude the government's experts from making any claims that imply that an identification can be made as a result from a latent print examination. *See Willock*, 696 F. Supp. 2d at 574–75 (recommending that ballistics examiner be "permitted only to state his opinions and bases without any characterization as to degree of certainty," because "without a proper basis for supporting the confidence level testified to, there is a real danger of misleading the jury").

The LPS Examiners should also be prepared "to discuss forthrightly the results of research studies that tested the accuracy of latent print examiners on realistic known-source samples." AAAS

Report at 11. The unadorned opinion of the expert about similarities in the pairs of prints, without any information about the high error rate, will leave the jury to determine for itself the probative value of such similarities. Given lay jurors' grossly inaccurate assumptions about the false positive rate of fingerprint examiners, *see* PCAST Report at 95 n. 282 (citing a study showing that mock jurors believed the false positive rate was 1 in 5.5 million), allowing the expert testimony without an explicit qualification of the level of uncertainty would be both inaccurate and exceedingly prejudicial. *See also* PCAST Report at 101 (requiring, to establish that a technique is scientifically valid, that the expert report the false positive rate when testifying).

Conclusion

For the foregoing reasons, this Court should conclude that the government has not met its burden to show the LPS Examiners' testimony is admissible under Rule 702, or alternatively, limit their testimony to accurately reflect the limitations of latent print examination.

Mr. Cantoni also respectfully reserves the right to supplement this motion based on (1) the proficiency testing results provided by the government on February 14, 2019, (2) the NYPD LPS's error rates, which the government has indicated are forthcoming, and (3) and any other disclosures that may bear on the admissibility on the testimony of the government's proposed experts.

Respectfully submitted,

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